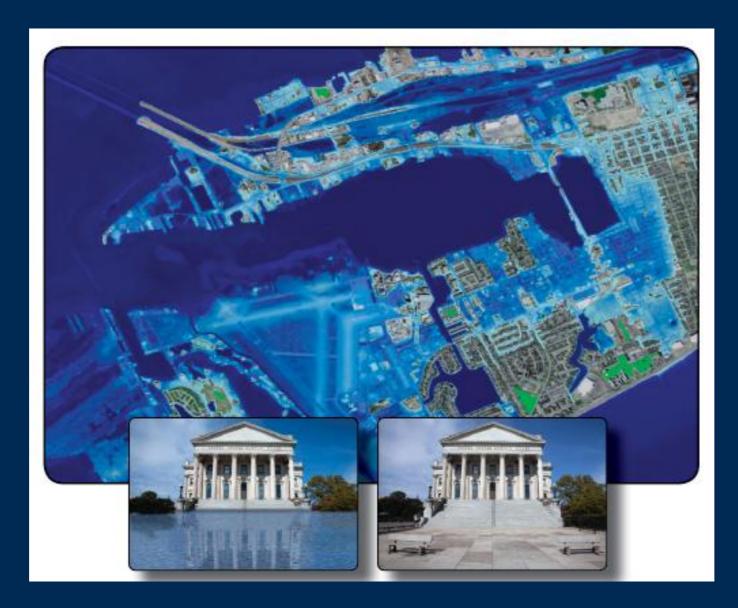
Sea Level Rise and Coastal Flooding Impacts Viewer



John Rozum
NOAA Coastal Services Center
EBM Tools Network

What Data Are Needed to Determine SLR Impacts?

(Dec. 09 Sea Level Rise and Inundation Community Workshop Executive Summary)

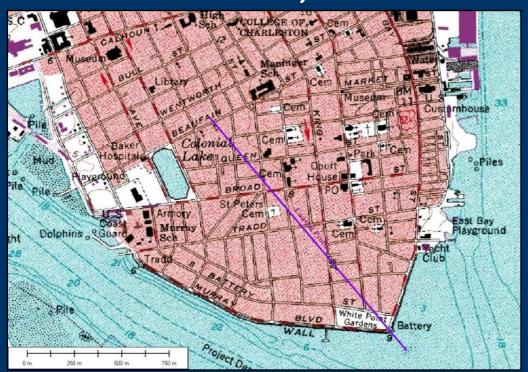
www.csc.noaa.gov/publications/inundation-workshop.html

- 1. Data to understand land forms and where and how water will flow (e.g. elevation/bathymetry)
- 2. Monitoring data and environmental drivers (e.g. tides, water levels)
- 3. Consistent sea level rise scenarios and projections across agencies to support local planning
- 4. Data to characterize vulnerabilities and impacts of sea level rise (e.g. land use, natural resources)
- 5. Community characteristics (e.g. demographics, societal vulnerabilities)
- 6. Legal frameworks and administrative structure (e.g. zoning, permitting requirements)

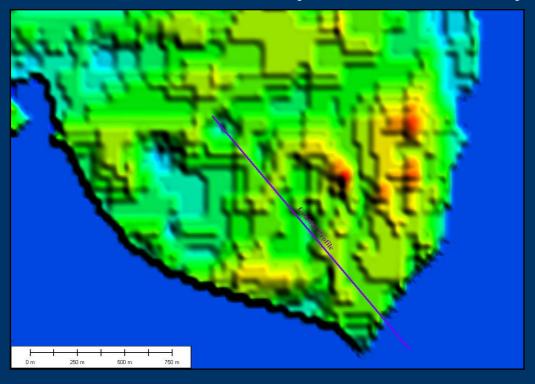


Importance of Elevation Data

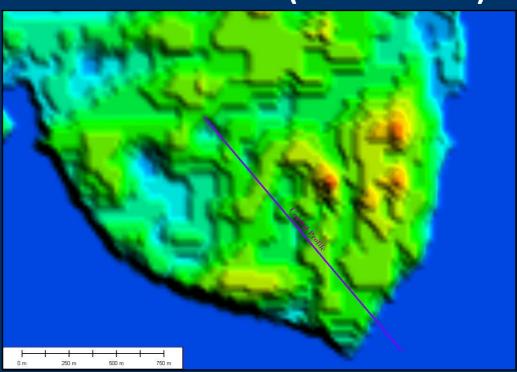
Profile in Charleston, South Carolina



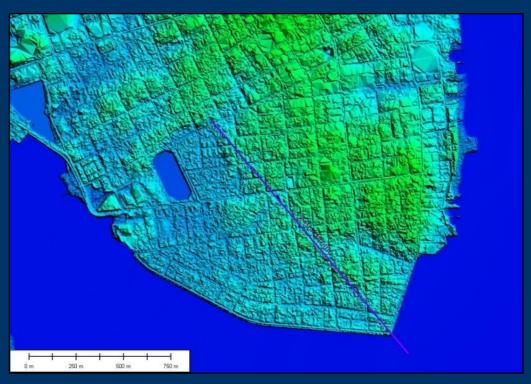
10-meter NED data (1/3 arc second)



30-meter NED data (1 arc second)

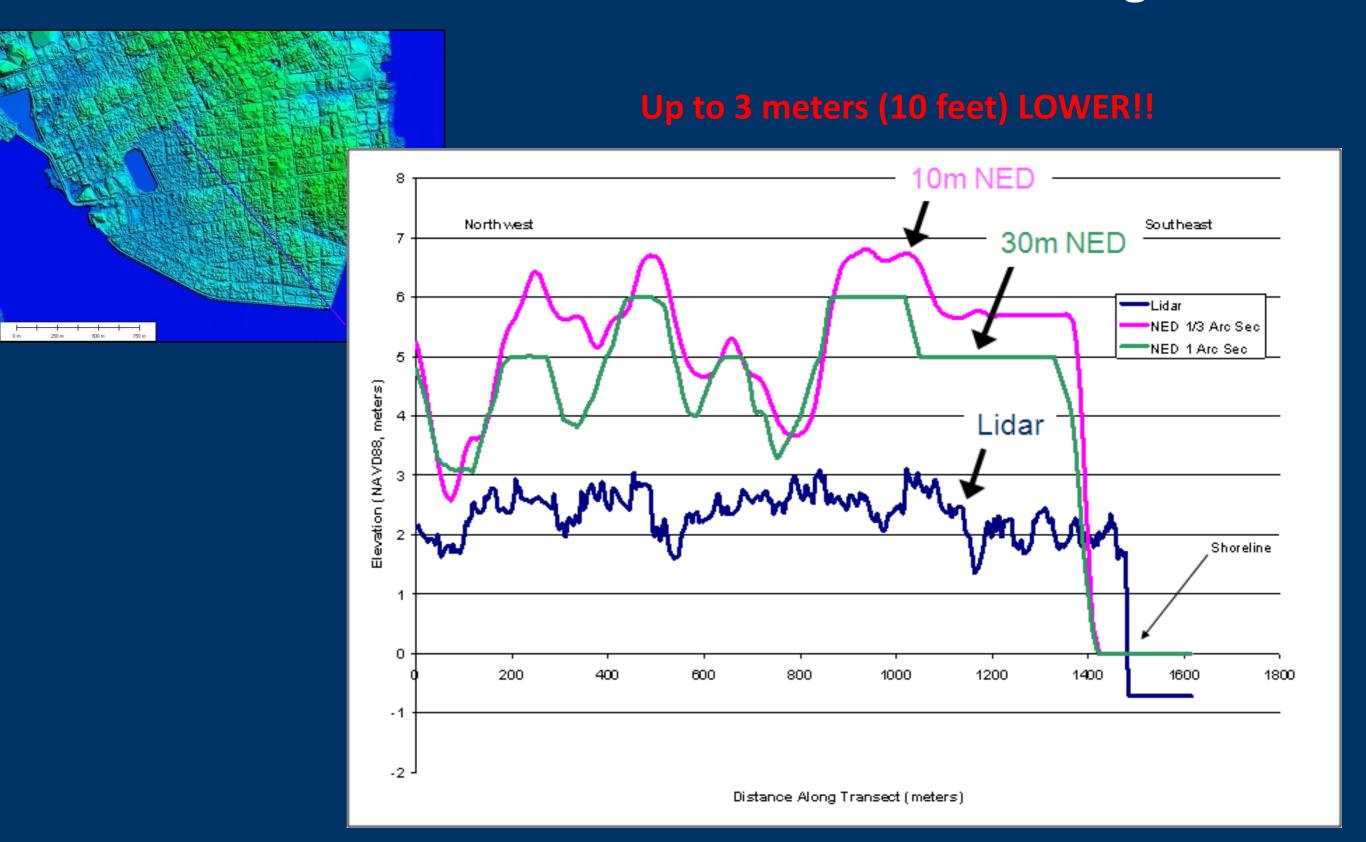


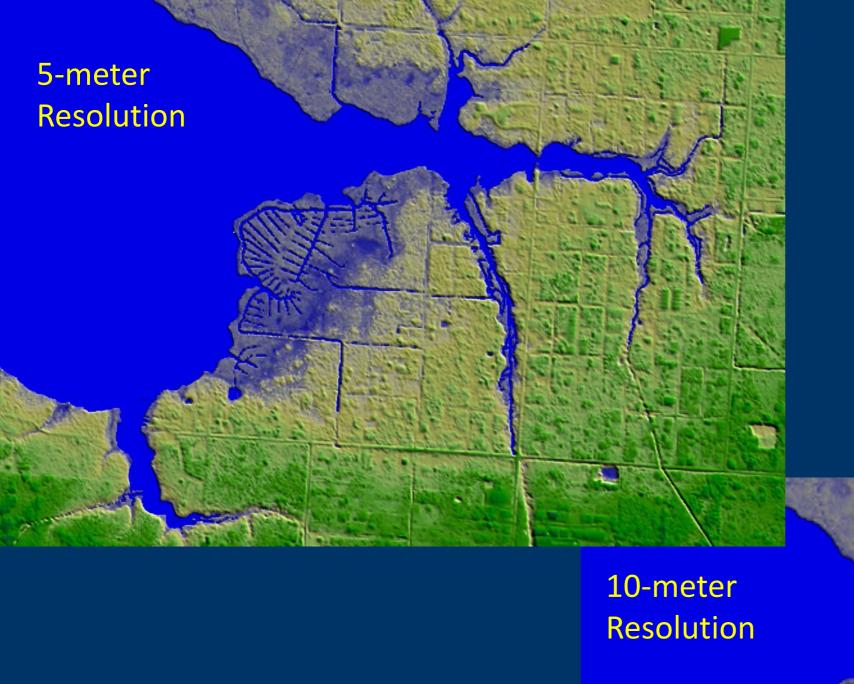
Lidar data



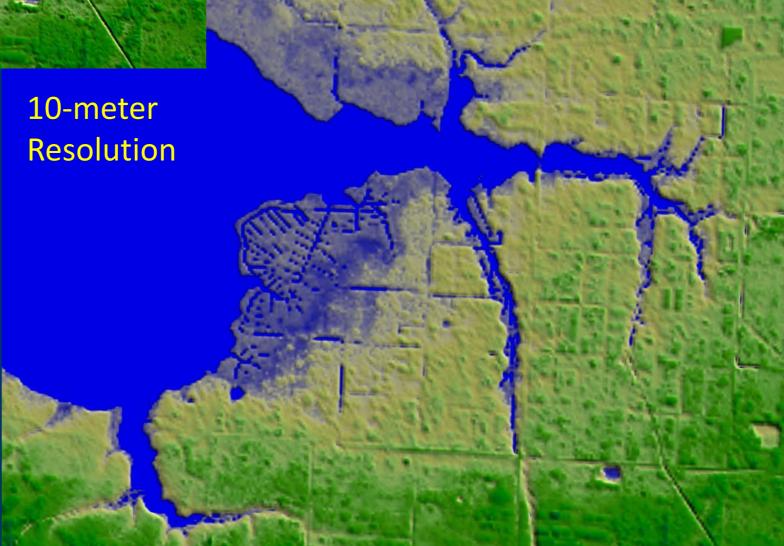
NED - National Elevation Dataset

In Charleston, South Carolina Vulnerable Areas Are Lower Than We Thought



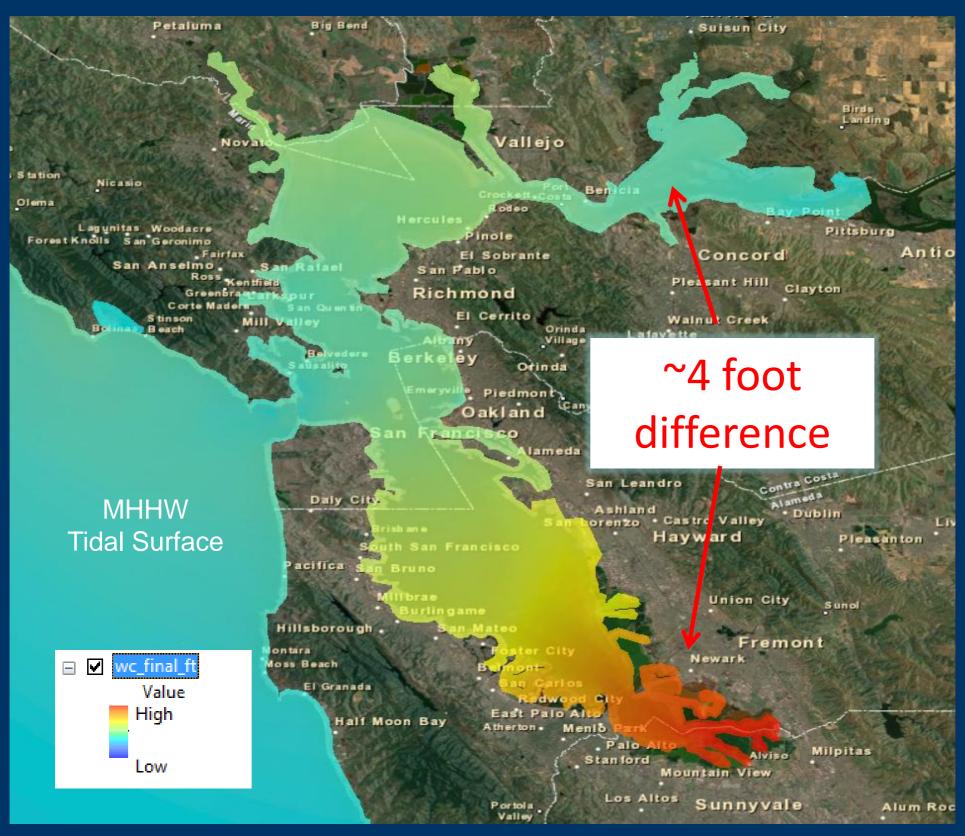


Resolution Requirements



The Ocean Is Not a Flat Surface

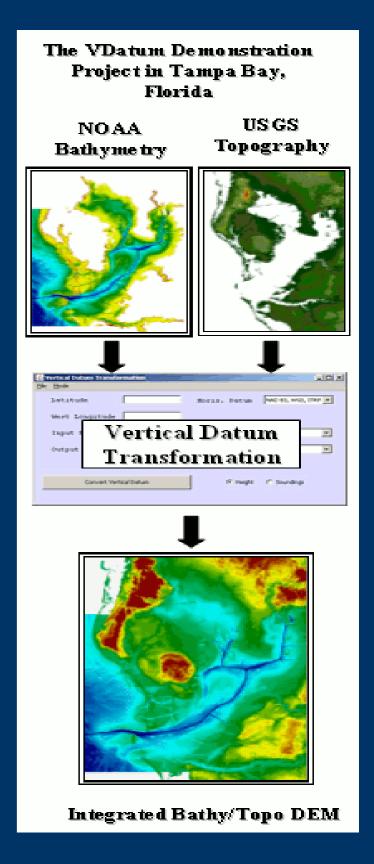
(especially in bays and estuaries)



Vertical Transformation

Using VDatum to convert between tidal, orthometric, and ellipsoidal datums

- Vertical Datum Transformation Tool
- Developed jointly by NOAA's Office of Coast Survey and the National Geodetic Survey
- Provides a method to accurately combine topographic (orthometric) and bathymetric (tidal) elevation data
- Application is limited to the region it was developed for



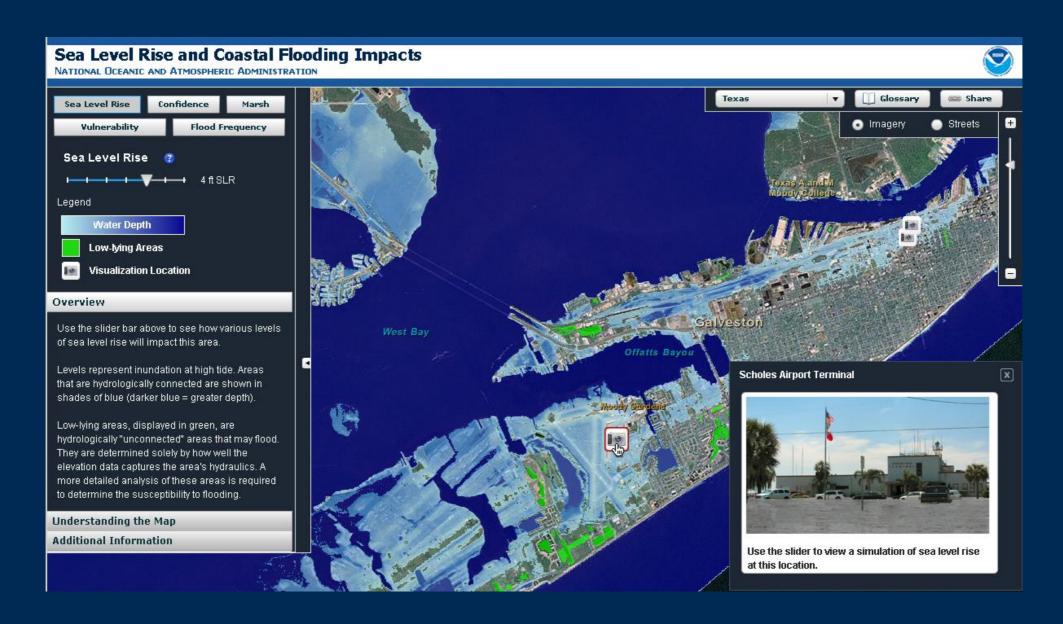


Sea Level Rise and Coastal Flooding Impacts Viewer



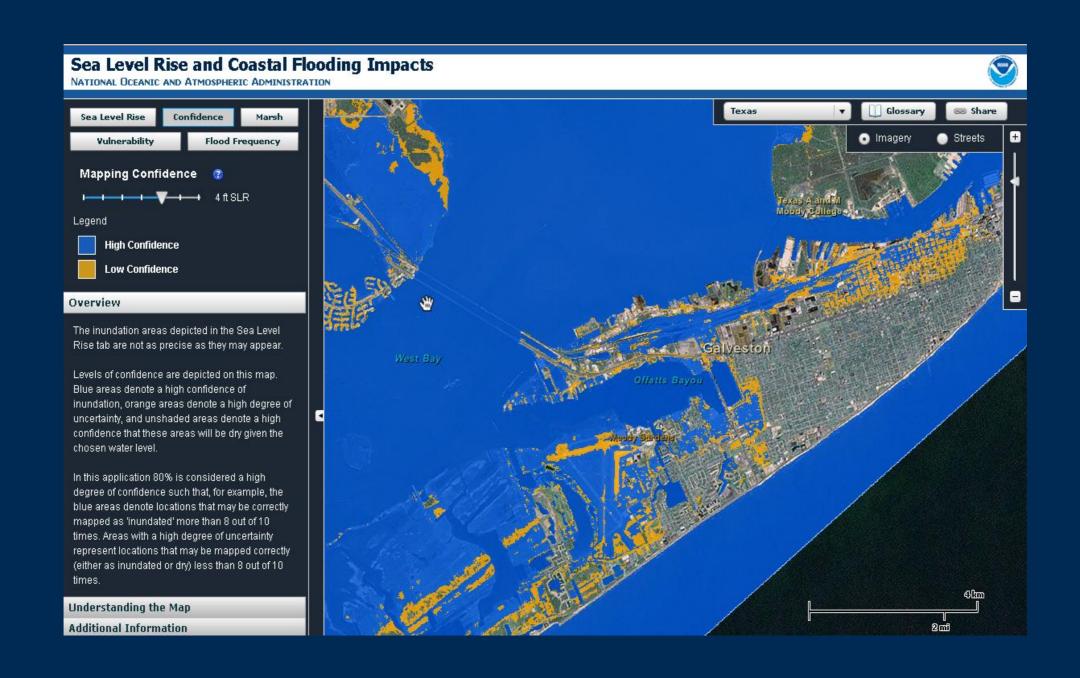
Components: Impacts of Sea Level Rise

Visualize impacts for mean higher high water 6-foot sea level rise scenarios overlaid on aerial imagery, street map, and terrain map.



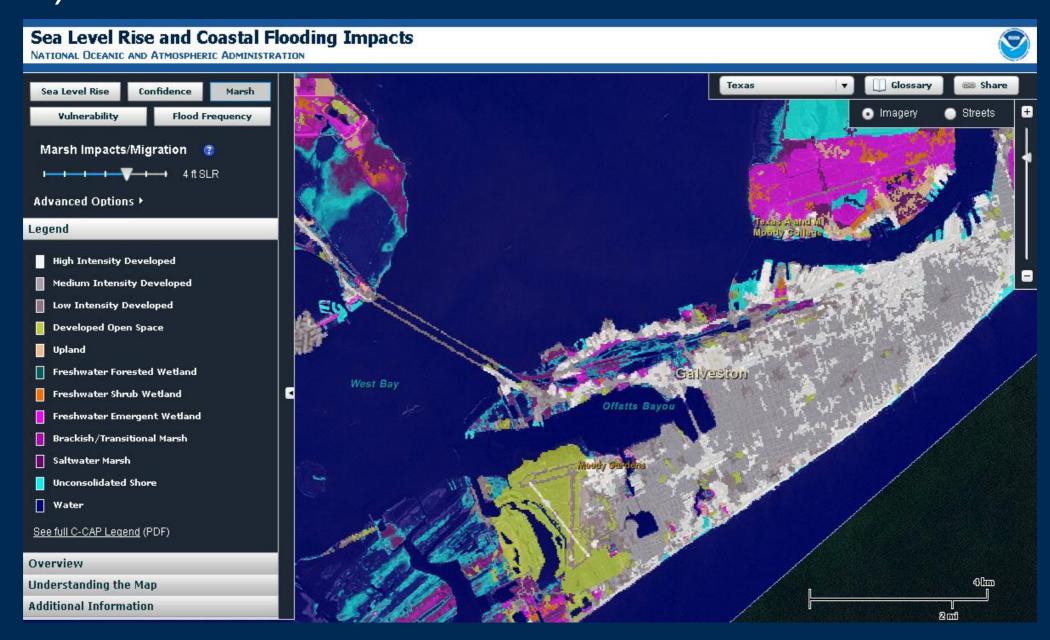
Components: Communicate Mapping Confidence

• Visualize the mapping confidence of the inundation area.



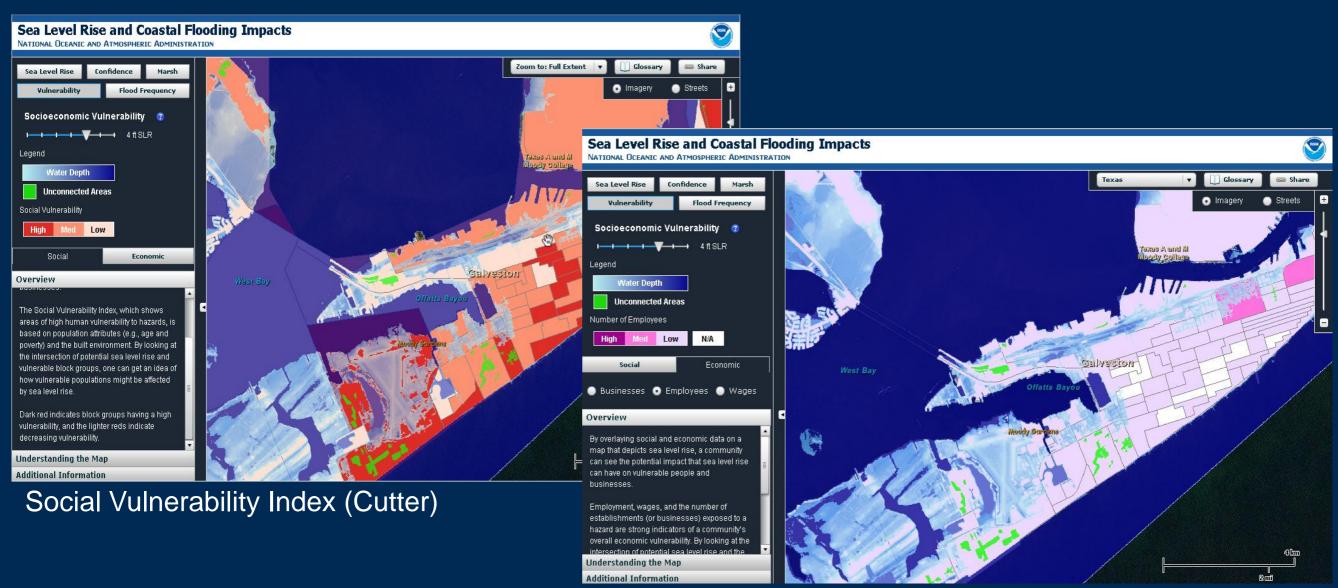
Components:Visualize Marsh Impacts

Wisualize the impacts of sea level rise scenarios on marshes using Coastal Change Analysis Program (C-CAP) data.



Components: Social and Economic Vulnerability

© Consider impacts of flooding on society and economy.



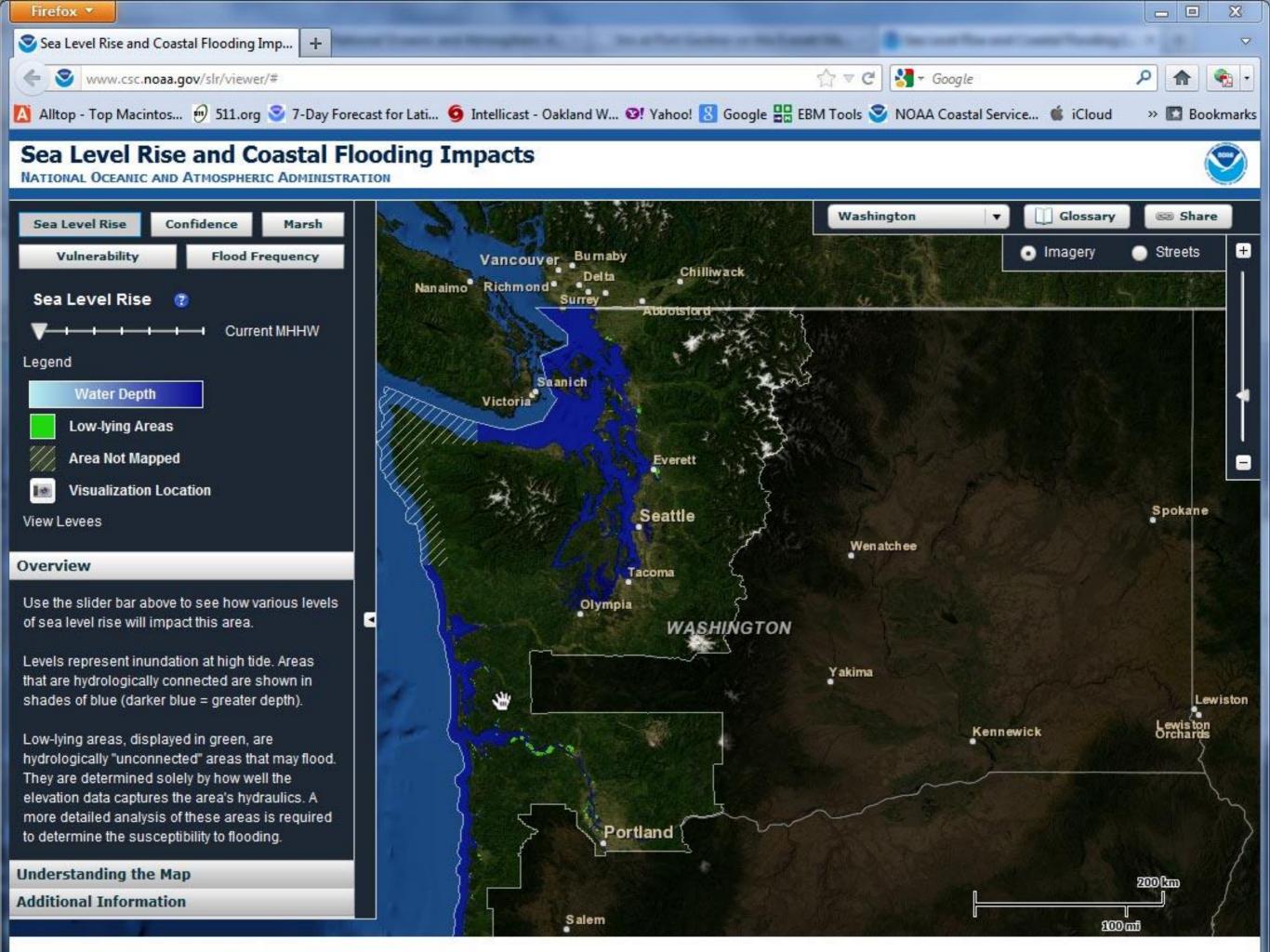
Bureau of Labor Statistics (Department of Labor)

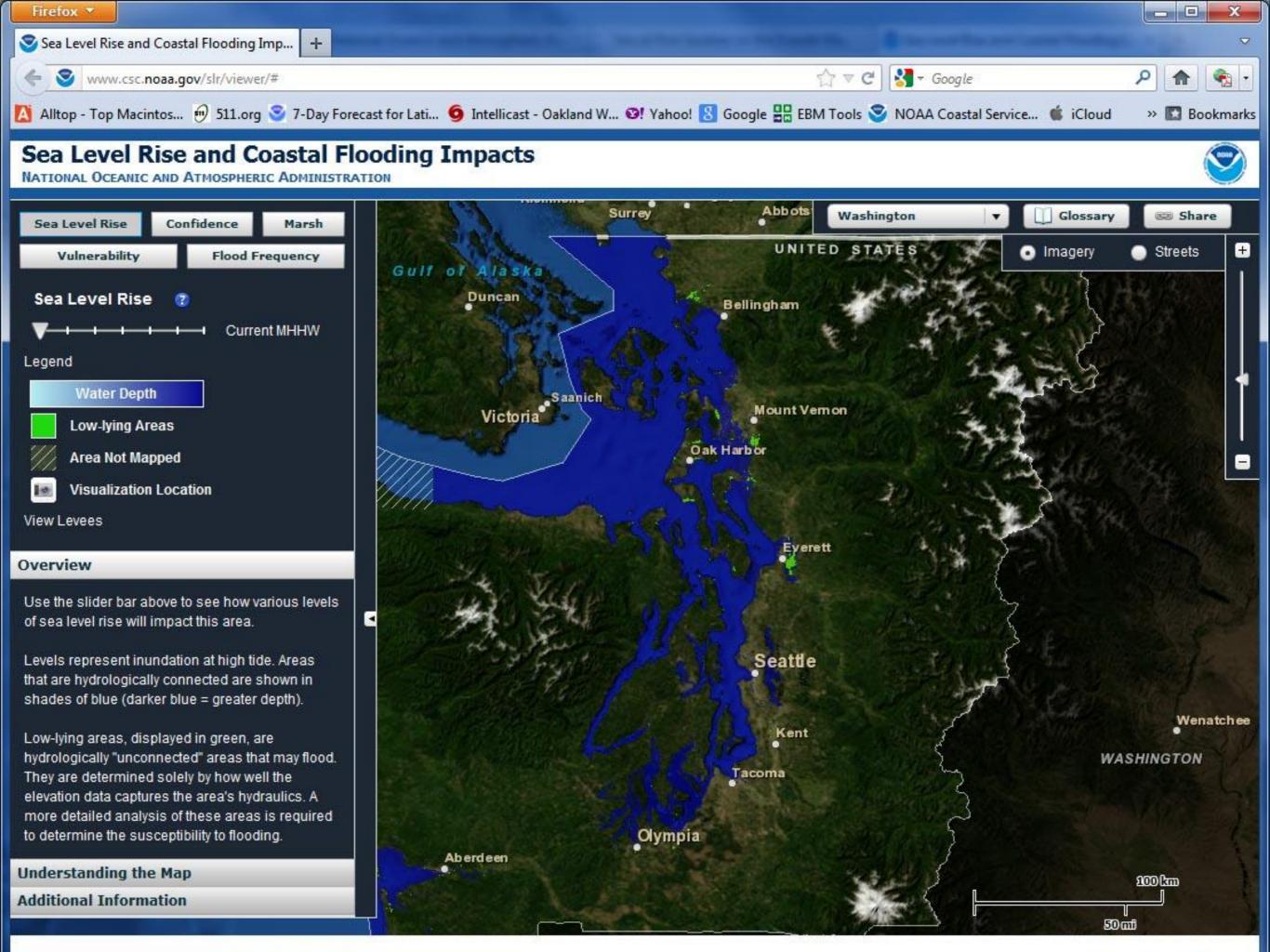
- Businesses, employees, wages

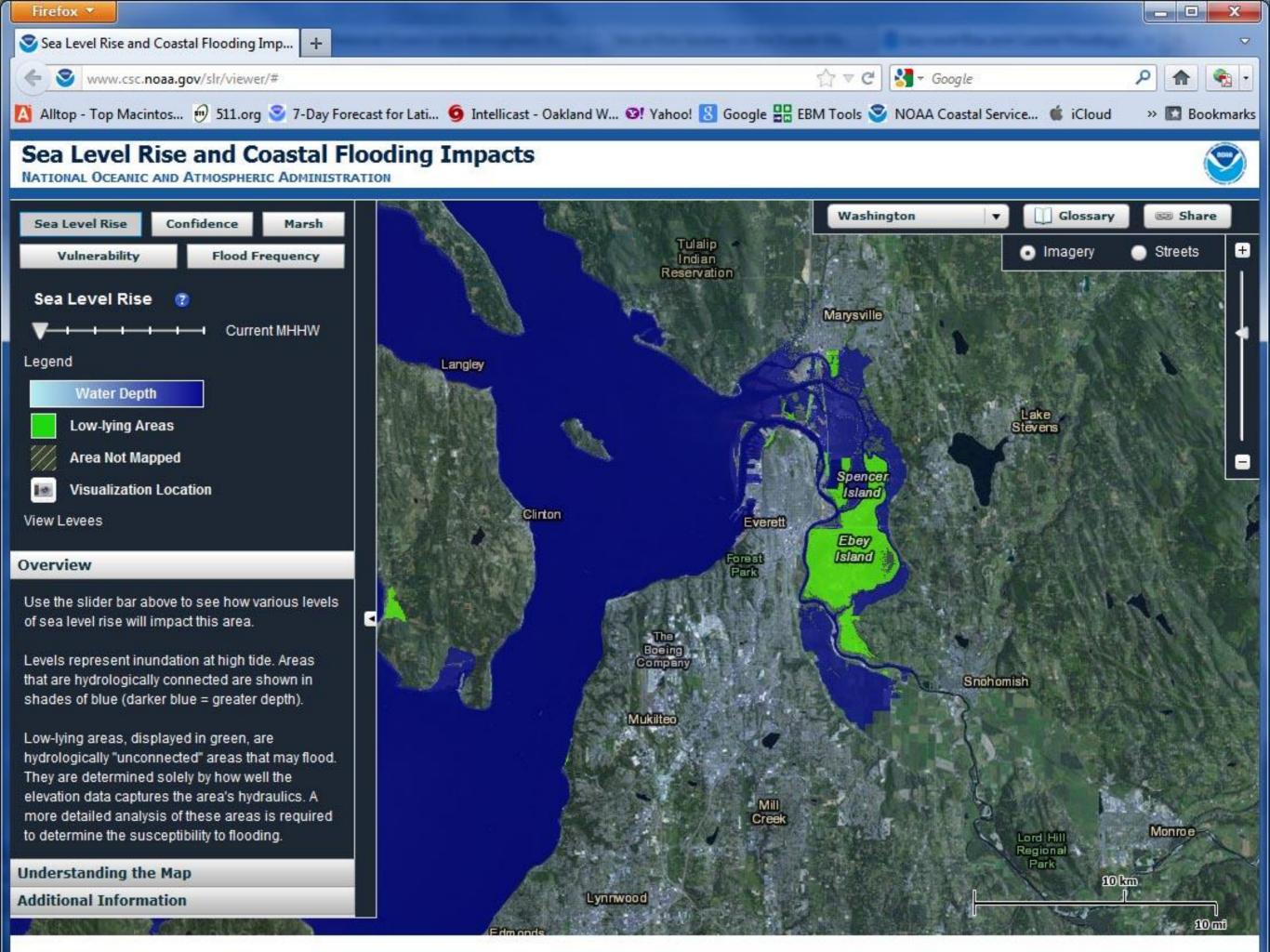
Components: Coastal Flood Frequency

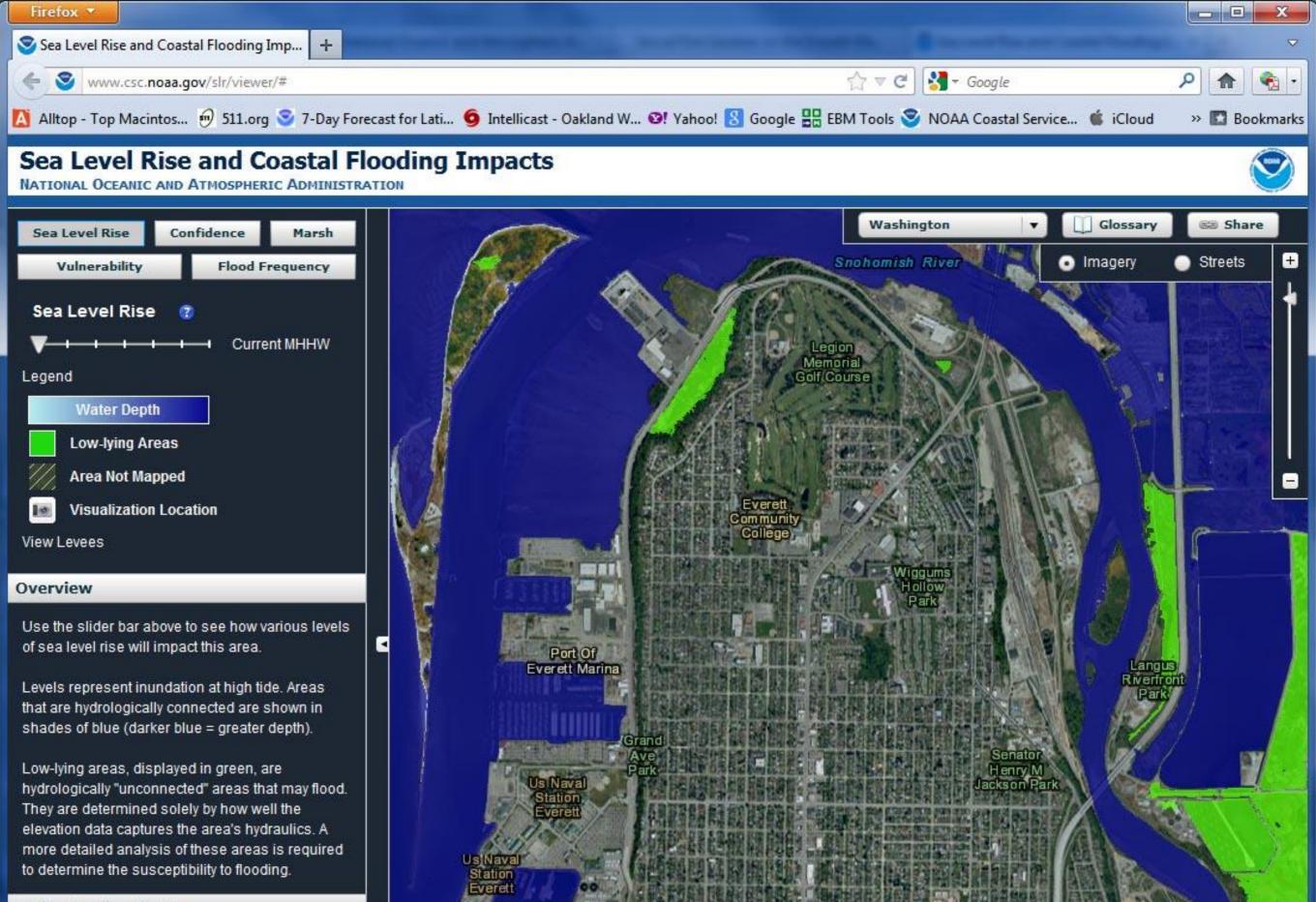
©Communicate that today's flood is tomorrow's high tide. Consider the increased frequency and duration of everyday flooding.











Understanding the Map



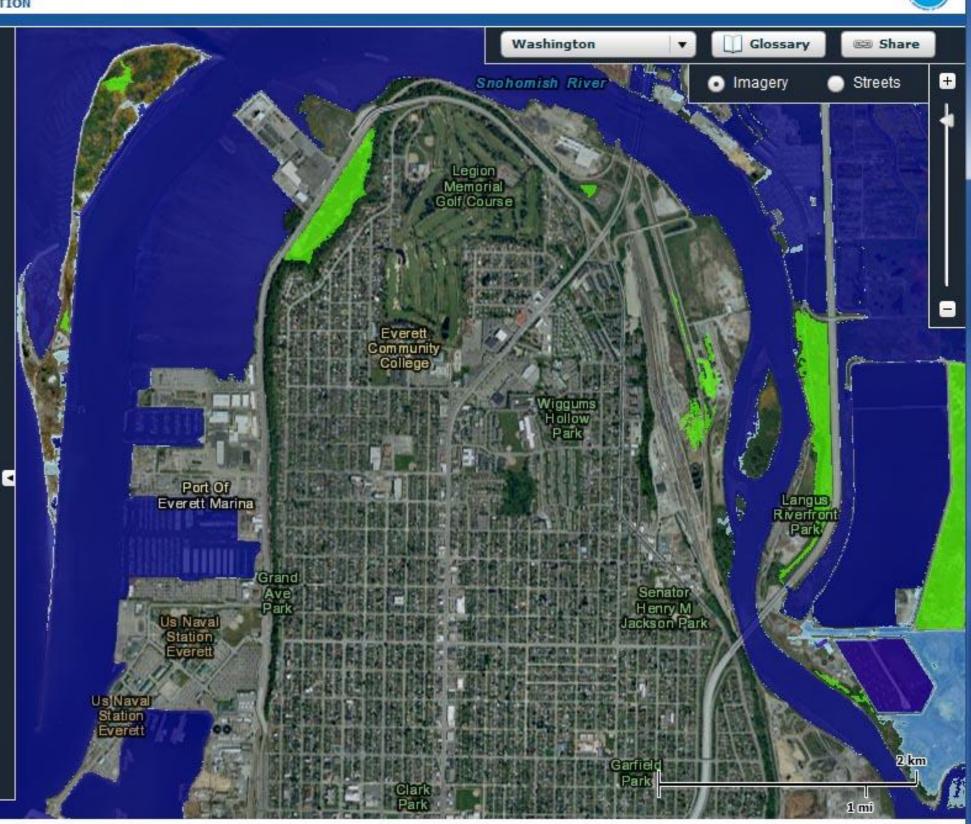


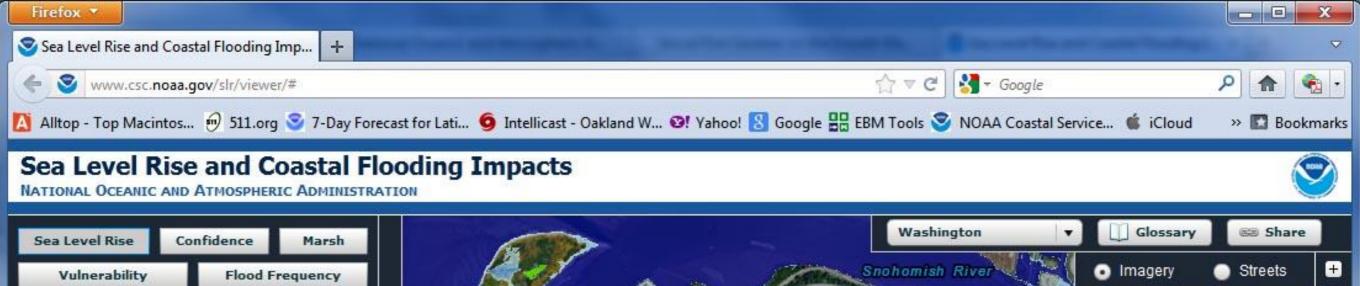
Use the slider bar above to see how various levels of sea level rise will impact this area.

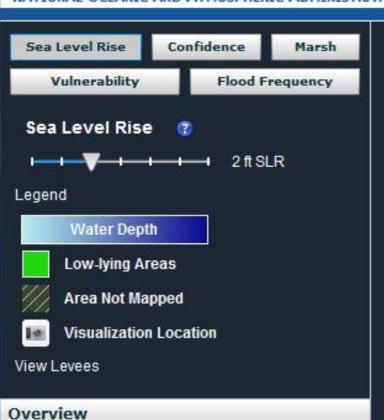
Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth).

Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's hydraulics. A more detailed analysis of these areas is required to determine the susceptibility to flooding.

Understanding the Map





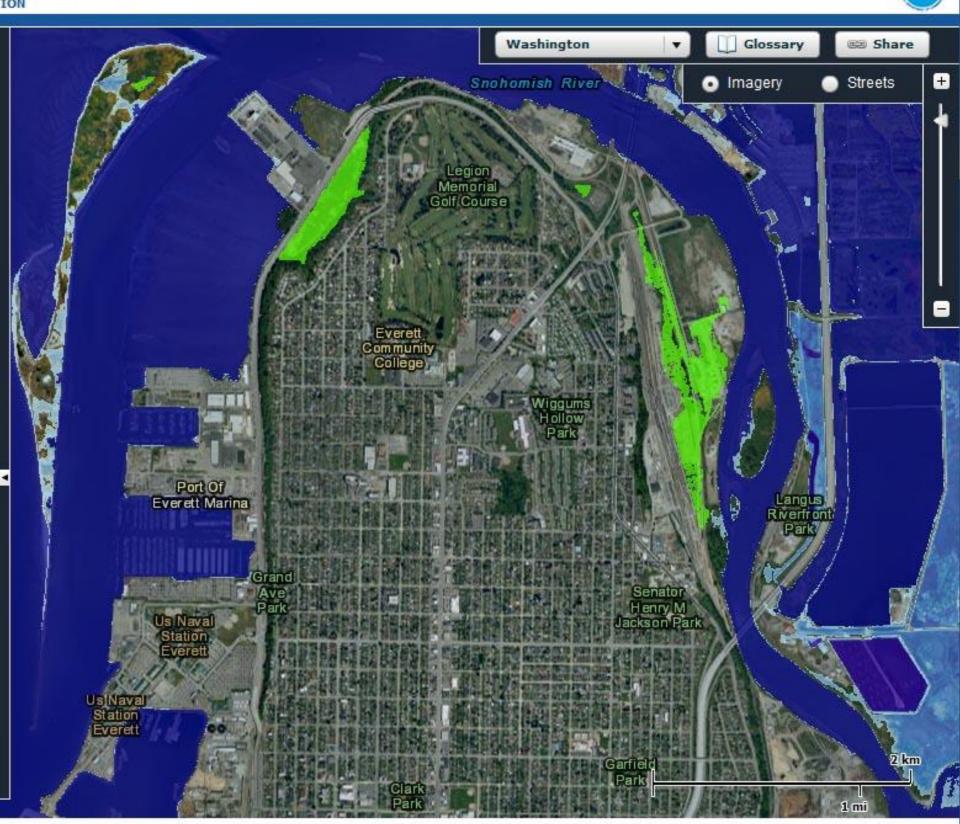


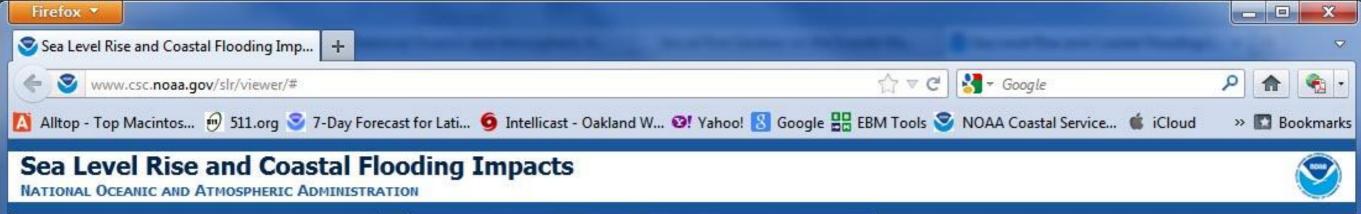
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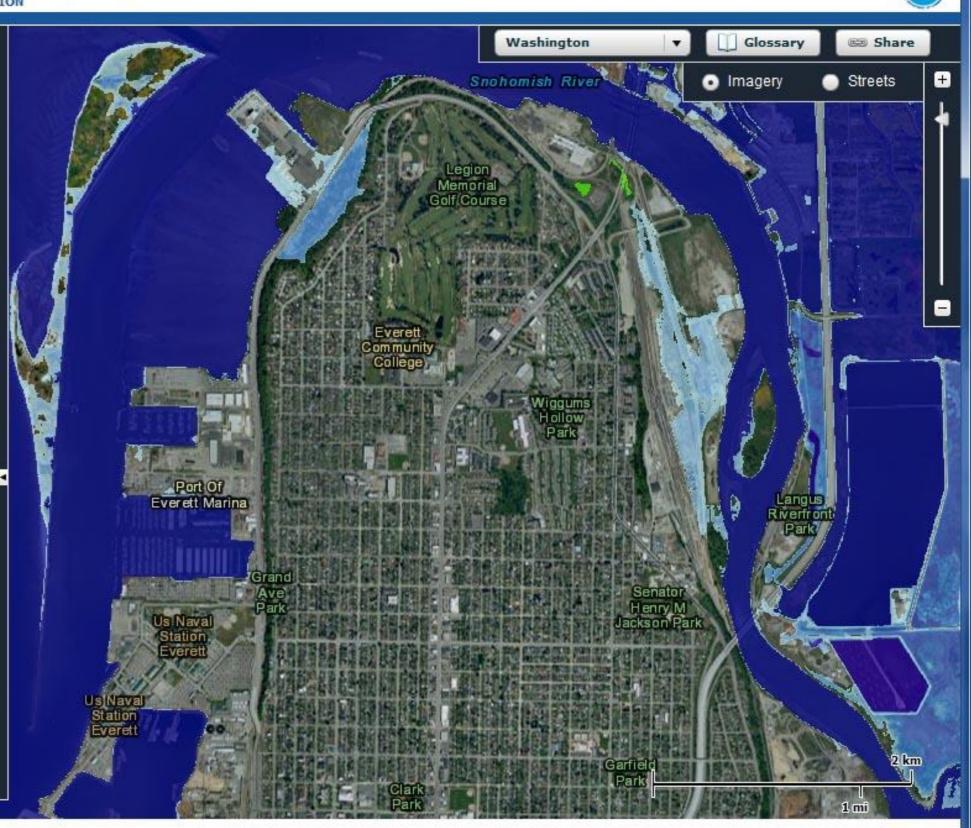


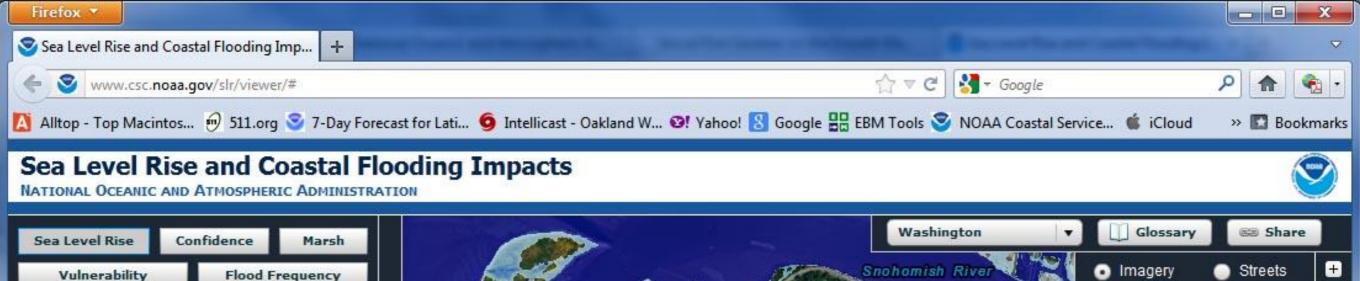
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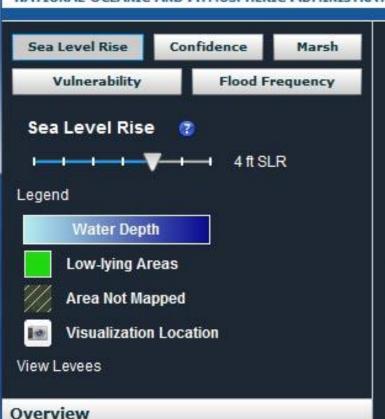
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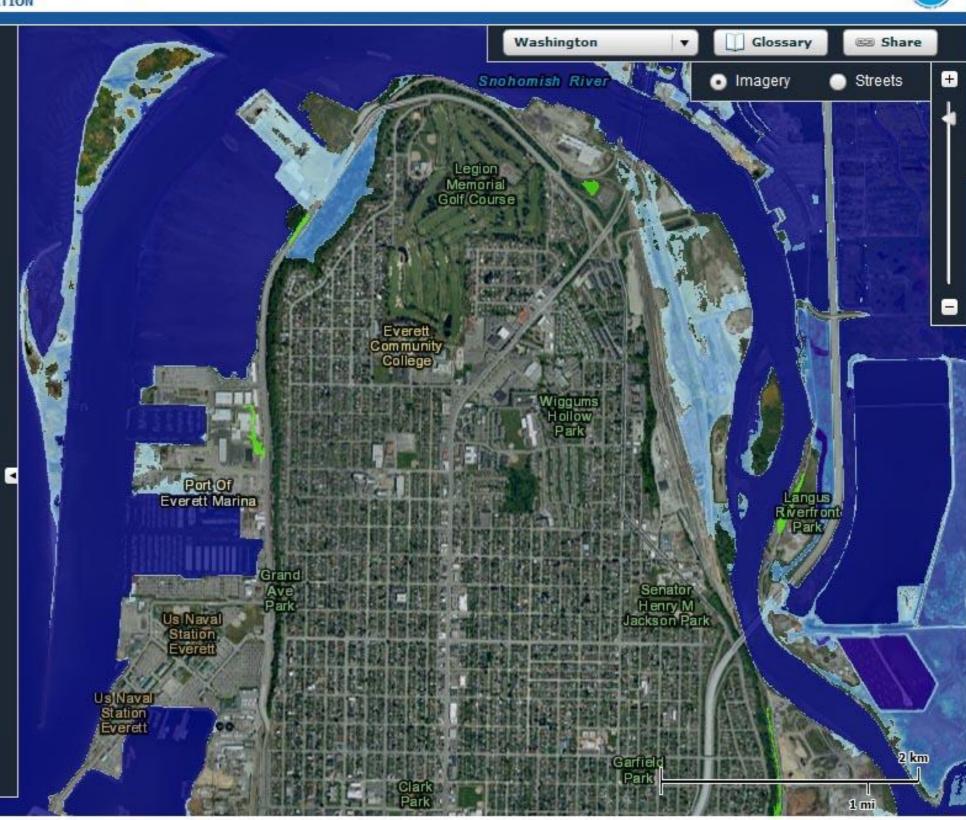


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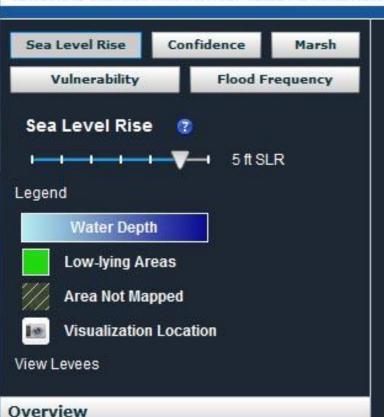
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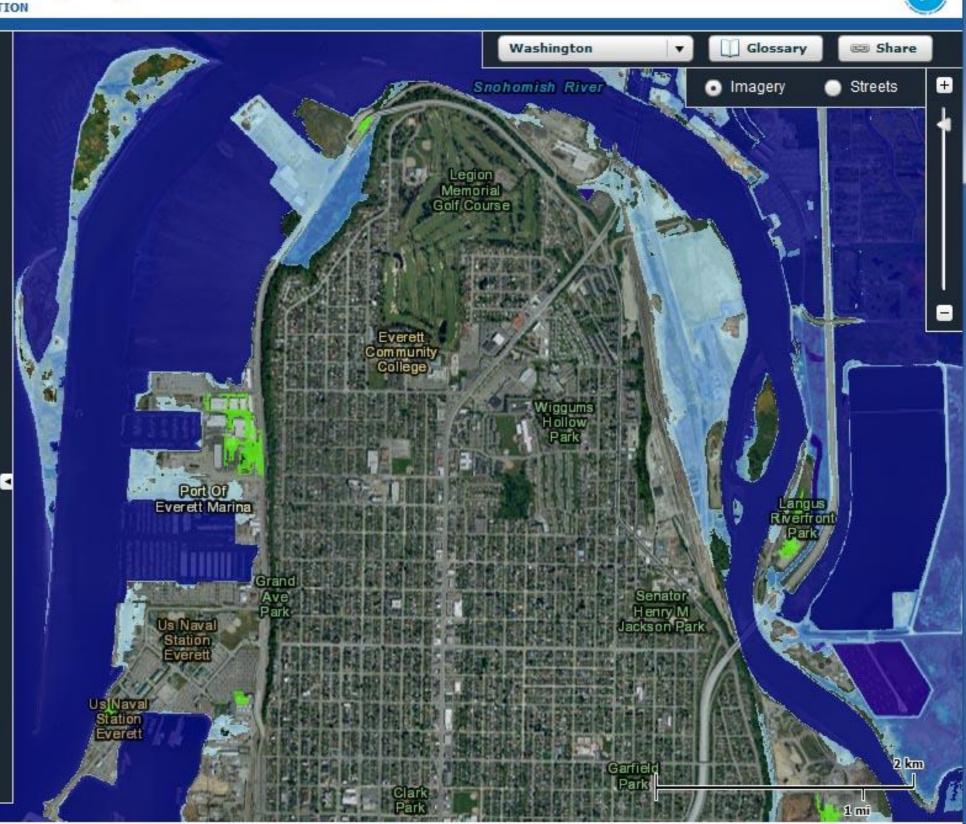


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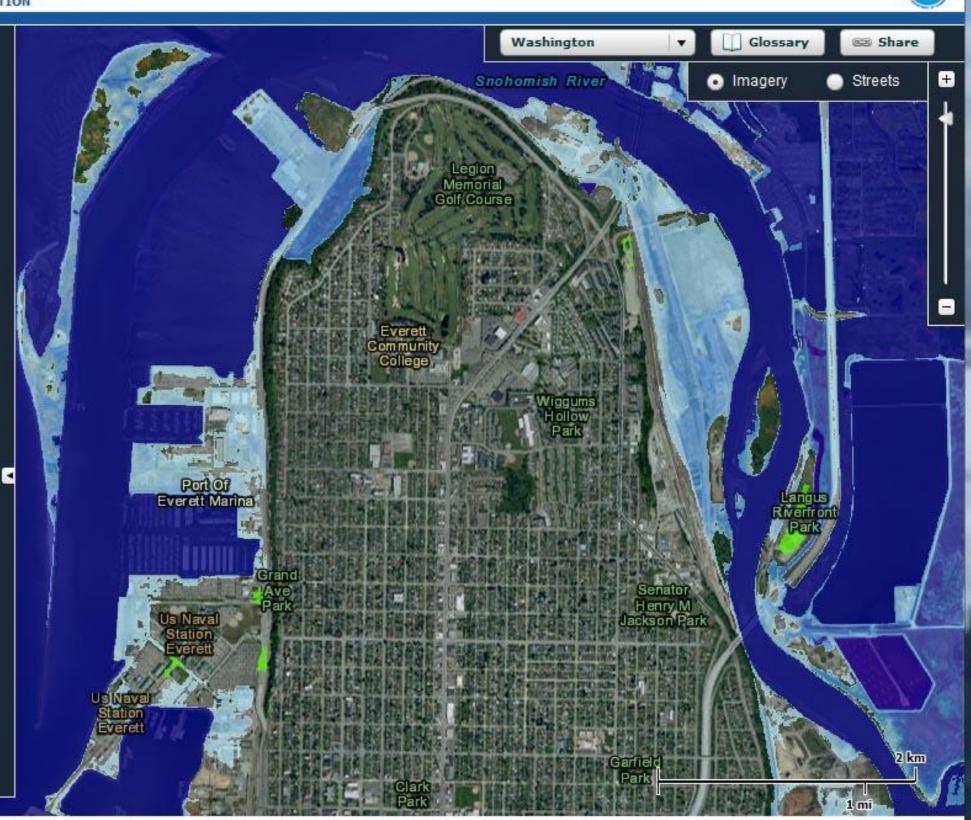


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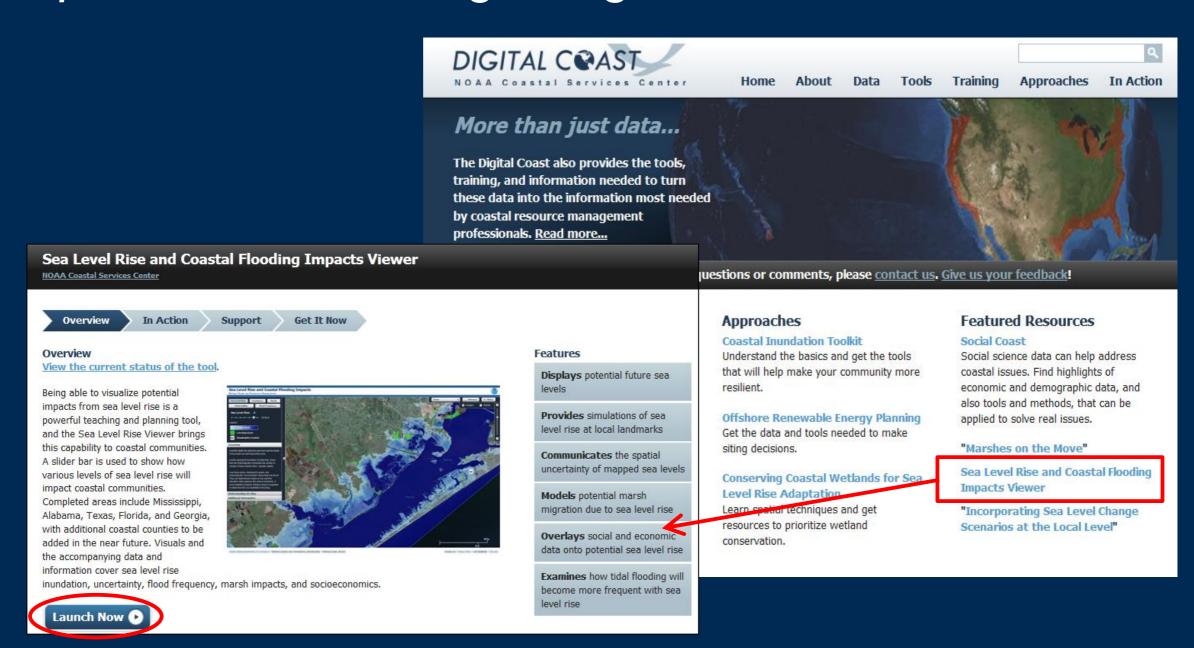
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Understanding the Map



Available via NOAA Digital Coast Tools

http://www.csc.noaa.gov/digitalcoast/tools/slrviewer





Thank-you!

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John.rozum@noaa.gov

http://csc.noaa.gov/slr